

PREFACE
The Quest for Ancient Life



I am being driven forward
Into an unknown land.
The pass grows steeper,
The air colder and sharper.
A wind from my unknown goal
Stirs the strings
Of expectation.
Still the question:
Shall I ever get there?
There where life resounds,
A clear pure note
In the silence.

- Dag Hammarskjöld

Members of the species *Homo sapiens sapiens* are, to the best of their current knowledge, unique in being able to ponder their own origin. In geological terms, it is only very recently that they have come to discover that sedimentary rocks provide one of the few viable mirrors into their remote past. She is a shattered mirror, however, her vulnerable fragments left exposed to the force of almost four billion years of erosion, weathering, deformation, metamorphism, and contamination. The handful of shards that offer themselves to vigilant field-geologists today offer, at best, a distorted and fragmentary reflection upon our evolutionary beginnings. What reason to expect more than this exists?

Unquestionably, the origin of life on Earth stands as one of the foremost enigmas facing human knowledge. Within the scientists' toolkit, the Earth's rock record provides one of very few gateways to this ancient question. The window of time corresponding to the first preserved evidence of sedimentation abruptly opens about 3.8 billion years ago. The subsequent 600 million or so years of geobiological history, bounded more-or-less *ad hoc* at 3.2 Ga¹, is termed the 'Early Archaean Era'. It forms the focus of this thesis. Only seldom will this study find cause to breach these temporal bounds and infringe on younger territory.

I should have liked to produce a good thesis. This has not come about, but the time is past in which I could improve it.

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¹ 1 Ga = 10⁹ years ago